

Amendment and Response

Applicant: Andrew H. Barr et al.

Serial No.: 10/714,302

Filed: Nov. 14, 2003

Docket No.: 200308580-1/H300.216.101

Title: SYSTEM AND METHOD FOR TESTING A MEMORY USING DMA

REMARKS

The following remarks are made in response to the Final Office Action mailed August 28, 2007. Claims 1-10 and 15-20 were rejected. Claims 11-14 are objected to. With this Response, claims 1-3, 8, 9, 11, and 14-17 have been amended. Claims 1-20 remain pending in the application and are presented for reconsideration and allowance.

Claim Rejections under 35 U.S.C. § 102

Claims 1-5 and 8 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,002,868 (Jenkins).

Claim 1, as amended, recites, *inter alia*:

a test module coupled to the first I/O controller using a second connection that is separate from the first connection and the first bus;
wherein the test module is configured to provide test transactions to the first I/O controller using the second connection, and wherein the first I/O controller is configured to provide the test transactions to the memory controller using the first bus to cause tests to be performed on the memory.

Jenkins does not teach or suggest the combination of “wherein the test module is configured to provide test transactions to the first I/O controller using the second connection” where the “second connection ... is separate from ... the first bus” and “wherein the first I/O controller is configured to provide the test transactions to the memory controller using the first bus” as recited in claim 1.

Jenkins teaches a “hard disk drive 124” that contains a “diagnostic application 150”.
See, e.g., column 3, line 67 to column 4, line 2 and Figure 1. Jenkins also teaches:

One known factory tool is Compaq Diagnostics for DOS (disk operating system). This tool provides a suite of tests which can be run on the personal computer to test a variety of devices, such as memory, hard disks, floppy disks and serial ports. A specific module is provided to test each device. Column 1, lines 27-32

By teaching that “the suite of tests ... can be run on the personal computer”, col. 1, lines 28-29, Jenkins teaches away from the above feature of claim 1 by teaching or suggesting that the suite of tests (i.e., diagnostic application 150) is executed by the processor

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(i.e., processor 100) of the personal computer. Accordingly, diagnostic application 150 is not “configured to provide test transactions to the first I/O controller using the second connection” where the “second connection ... is separate from ... the first bus” as recited in claim 1. Further, Jenkins does not teach or suggest “wherein the first I/O controller is configured to provide the test transactions to the memory controller using the first bus” as recited in claim 1.

Applicants respectfully request the withdrawal of the rejection of claim 1, and claims 2-5 and 8 which depend from claim 1, under 35 U.S.C. §102(b) for at least this reason.

In addition, claim 8 has been amended to recite “wherein the first I/O controller is configured to provide the test transactions to the bus bridge, and wherein the bus bridge is configured to provide the test transactions to the memory controller using the first bus.” Applicants respectfully submit that Jenkins does not teach or suggest this feature of claim 8 and respectfully request the withdrawal of the rejection of claim 8 under 35 U.S.C. §102(b) for at least this additional reason

Claim Rejections under 35 U.S.C. § 103

Claims 6-7, 9-10, and 15-20 are rejected under U.S.C. §103(a) as being unpatentable over Jenkins in view of U.S. Patent No. 5,619,513 (Shaffer).

With regard to claims 6-7 which depend from claim 1, Applicants respectfully submit that Shaffer does not teach or suggest the features of claim 1 that are not taught or suggested by Jenkins as described above. Accordingly, Applicants respectfully request the withdrawal of the rejection of claims 6-7 under 35 U.S.C. §103(a) for at least this reason.

Claim 9, as amended, recites, *inter alia*:

generating a test transaction in a test module coupled to an input/output (I/O) controller using a first connection that is separate from a second connection that is configured to couple the I/O controller to one or more I/O devices and separate from a system bus coupled to a processor, the test module and the I/O controller included in a chipset coupled to the memory and the system bus;

providing the test transaction from the test module to the I/O controller using the first connection;

providing the test transaction from the I/O controller to a memory controller; and

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providing the test transaction from memory controller to the portion using direct memory access (DMA).

Jenkins does not teach or suggest the combination of these features of claim 9 for reasons similar to those given above for claim 1. In addition, Shaffer does not teach or suggest the features of claim 9 that are not taught or suggested by Jenkins.

Applicants respectfully request the withdrawal of the rejection of claim 9, and claim 10 which depends from claim 9, under 35 U.S.C. §103(a) for at least this reason.

Claim 15, as amended, recites, *inter alia*:

a test module coupled to the I/O controller using a second connection that is separate from the first connection and the bus; wherein the test module is configured to provide test transactions to the I/O controller using the second connection, and wherein the first I/O controller is configured to provide the test transactions to the memory controller using the bus to cause tests to be performed on the memory using direct memory access (DMA).

Jenkins does not teach or suggest the combination of these features of claim 15 for reasons similar to those given above for claim 1. In addition, Shaffer does not teach or suggest the features of claim 15 that are not taught or suggested by Jenkins.

Applicants respectfully request the withdrawal of the rejection of claim 15, and claims 16-20 which depend from claim 15, under 35 U.S.C. §103(a) for at least this reason.

In addition, Jenkins and Shaffer may not properly be combined to support a rejection of claims 6-7, 9-10, and 15-20 under 35 U.S.C. §103(a) because the combination would change the principle of operation of Jenkins. See MPEP §2143.01(VI). In order for diagnostic application 150 of Jenkins to use “direct memory access (DMA) transactions” as recited in claim 7, diagnostic application 150 would need to be executed from a device that uses DMA to access main memory 108 such as peripheral controller 40 of Shaffer. As noted above, however, Jenkins teaches or suggests that diagnostic application 150 is executable by processor 100. Accordingly, the combination of Shaffer with Jenkins would change the principle of operation of Jenkins because, as one of ordinary skill in the art would recognize, processor 100 would not use DMA to access main memory 108. Applicants

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respectfully request the withdrawal of the rejection of claims 6-7, 9-10, and 15-20 under 35 U.S.C. §103(a) for at least this additional reason.

Objection to the Claims

Claims 11-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants respectfully appreciate this indication of allowance. Applicants respectfully submit, however, that the parent claim of claims 11-14 are also allowable as described above.

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CONCLUSION

In view of the above, Applicant respectfully submits that pending claims 1-20 are in form for allowance and are not taught or suggested by the cited references. Therefore, reconsideration and withdrawal of the rejections and allowance of claims 1-20 is respectfully requested.

The Examiner is invited to contact the Applicant's representative at the below-listed telephone numbers to facilitate prosecution of this application.

Any inquiry regarding this Amendment and Response should be directed to either David A. Plettner at Telephone No. (408) 447-3013, Facsimile No. (408) 447-0854 or Christopher P. Kosh at Telephone No. (512) 241-2403, Facsimile No. (512) 241-2409. In addition, all correspondence should continue to be directed to the following address:

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Respectfully submitted,

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Date: October 29, 2007

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